

# Six Human-Centered Artificial Intelligence Grand Challenges

Year: 2023 | Citations: 307 | Authors: Ozlem Ozmen Garibay, Brent D. Winslow, S. Andolina, M. Antona, Anja Bodenschatz

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## Abstract

Abstract Widespread adoption of artificial intelligence (AI) technologies is substantially affecting the human condition in ways that are not yet well understood. Negative unintended consequences abound including the perpetuation and exacerbation of societal inequalities and divisions via algorithmic decision making. We present six grand challenges for the scientific community to create AI technologies that are human-centered, that is, ethical, fair, and enhance the human condition. These grand challenges are the result of an international collaboration across academia, industry and government and represent the consensus views of a group of 26 experts in the field of human-centered artificial intelligence (HCAI). In essence, these challenges advocate for a human-centered approach to AI that (1) is centered in human well-being, (2) is designed responsibly, (3) respects privacy, (4) follows human-centered design principles, (5) is subject to appropriate governance and oversight, and (6) interacts with individuals while respecting human's cognitive capacities. We hope that these challenges and their associated research directions serve as a call for action to conduct research and development in AI that serves as a force multiplier towards more fair, equitable and sustainable societies.